

Market Model

8.1 Summary

The market model was developed to estimate the number of ETAs that would be demanded by unbanked Federal check recipients for various potential hypothetical ETA configurations. Utilizing the conjoint research, the model first estimates the ETA 'take-rate' by segment. The 'take-rate' is then multiplied by the estimated number of unbanked Federal check recipients for each demographic segment.

Previous research has estimated that there are between 5.2 million and 6.5 million unbanked Federal check recipients¹. The 'low case' uses an estimate of five million and the 'high case' uses an estimate of seven million unbanked Federal check recipients.

The market model provides the following information:

- The 'take-rates' for various ETA configurations for overall and for each segment.
- The 95% confidence interval for each configuration.
- Estimated ETA demand for various account configurations and market segmentation schemes.

Segment population estimations are multiplied by the binary share of choice based 'take-rate' for various ETA configurations to produce estimates of total potential ETA customers for each segment.

¹Source: FMS/Treasury commissioned report, ETA Initiative Final Report, Dove Associates, June 15, 1998 — "ETA prospects who do not have a bank account at an Financial Institution represent 24% of the Federal benefit check recipient population — approximately 5.2 to 6.5 million individuals".

8.2 Overall Weighted Average Demand

Overall demand for the ETA configurations is estimated by using a weighting process that adjusts for the undersampling of Social Security and the oversampling of the smaller programs. The overall demand is calculated by applying estimated segment weights (see Table 8.1) to estimate the number of individuals that may belong to a specific segment population. All of the segment weights, except for region, are calculated by using the percentage of respondents from each demographic segment identified in the questionnaire. For the region weights, the 1997 Statistical Abstract of the United States was used. It is important to consider that these demographic assumptions may need to be modified if better information is available from other sources.

Segment Weights

Area	
City	42%
Suburb	8%
Small Town	27%
Countryside	23%
Dogion	

Region	
West	22%
Midwest	18%
Central	16%
Northeast	25%
Southeast	19%

Age	
Under 34 years	20%
Ages 34 –54	32%
Ages 55 – 74	31%
Over 74 years	17%

Program	
SSA	66%
SSA&SSI	9%
SSI	16%
OPM	2%
Railroad	1%
Veterans	6%

\$8,000 - \$14,999	25%
Over \$15,000	16%

59%

Annual Household Income

Under \$8,000

Ethnic Group ²	
Hispanic	14%
Black	25%
White	52%
Asian	2%
Pac Isl / Nat Hawaii	1%
Am Ind / Alsk Nat	5%
Other	2%

Table 8.1

8.3 Estimated Overall ETA Demand

Applying the 'Take-Rate' results for each of the five product configurations to the estimated number of unbanked Federal check recipients, the market model suggests that the potential number of ETAs³ will range from 216 thousand ETAs for the 'All-Electronic' ETA at a \$4.00 monthly fee (low case) to 2,836 thousand ETAs for the 'Option D+I+P' ETA at a \$2.00 monthly fee (high case). The sensitivity of various ETA configurations at three monthly fee levels are shown in tables 8.2, 8.3 and 8.4.

For the five ETA account configurations discussed in Chapter 7, 'All Electronic', 'Base', 'Option D', 'Option D+I', and 'Option D+I+P', the tables below display the ETA demand that would be expected at each monthly fee level. The table below shows that at a \$3.00 monthly fee the estimated number of ETAs ranges from 276 thousand ETAs to 2,007 thousand ETAs.

'Take-Rate' and Expected Number of ETA Accounts at a \$2.00 Monthly Fee (weighted)

	Mean	Low Case*	High Case**
Option (\$2.00)	Take-	Number of ETA	Number of ETA

² Does not add up to 100% because of rounding.

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³ Using the estimate of five million unbanked Federal check recipients and the mean 'take-rate' estimate.

	Rate	Accounts (000)	Accounts (000)
All Electronic	9%	452	632
Base	18%	918	1,285
Option D	26%	1,295	1,813
Option D+I	37%	1,870	2,619
Option D+I+P	41%	2,026	2,836

Table 8.2

'Take-Rate' and Expected Number of ETA Accounts at a \$3.00 Monthly Fee (weighted)

Option (\$3.00)	\$3.00) Mean Low Case* Take- Rate Accounts (000)		High Case** Number of ETA Accounts (000)			
All Electronic	6%	276	386			
Base	12%	585	818			
Option D	17%	855	1,197			
Option D+I	26%	1,302	1,822			
Option D+I+P	29%	1,433	2,007			

Table 8.3

'Take-Rate' and Expected Number of ETA Accounts at a \$4.00 Monthly Fee (weighted)

Option (\$4.00)	Mean Take- Rate	Low Case* Number of ETA Accounts (000)	High Case** Number of ETA Accounts (000)			
All Electronic	4%	216	303			
Base	9%	465	651			
Option D	14%	686	960			
Option D+I	21%	1,068	1,495			
Option D+I+P	24%	1,188	1,663			

Table 8.4

^{*} Low case assumes 5MM unbanked Federal check recipients

^{**} High case assumes 7MM unbanked Federal check recipients

8.4 Market Model Instructions

The market model was developed in Microsoft Excel 97. It is composed of two main interactive parts, both of which can be located in the 'Model' worksheet of 'EtaModel.xls.' The first part asks the user to create an ETA by entering the desired level for each of the six ETA features (deposits, interest, payments, access points, monthly access, and monthly fee). See below:

Low, mean, and high 'Take-Enter desired feature level here Rates' are outputed here Choice Attribute **Product Chosen:** 'Take Rate' High* Level eposits: Federal only Overall (weighted average) Federal and other Region No interest paid 2% interest paid West Midwest 10% Pavments: Bill pay offered No bill pay 2 Central 7% 5% Northeast Access Bank or ATM 4 ATM Only outheast Store or ATM Bank, Store or ATM Area Points: City Monthly 3 free, then \$1 each 2 4 free, then \$1 each Small Town 6% 4 free, then \$1 each ountryside 5 free, then \$1 each Program SSA Monthly \$4.00 per month \$3.00 per month SSA&SSI 3% 5% SSI 8% Other Programs Veterans ** Railroad 9% ** OPM Under 35 years old Ages 35 -54 11% This box describes the features Ages 55 - 74 4% of the selected ETA Over 74 years Household Income Under \$8,000 / year \$8,000 - \$14,999 / year Over \$15,000 / year Ethnic Group 8% Black 11% White

Market Model Account Configuration and 'Take-Rate' Screen

Figure 8.1

The box in the middle, labeled 'Product Chosen,' lists the feature levels the user has selected. If an invalid choice number is entered, the word 'Incomplete' will appear in the 'Product Chosen' box.

The box labeled 'Take-Rate' displays the mean voluntary acceptance rates for the configured account. A low and a high 'take-rate' have also been calculated using the mean 'take-rate' plus or minus 1.96 standard errors. This provides a statistically valid range of estimates for ETA demand at the 95% confidence level.

As the ETA configuration is modified by the user, the 'take-rates' for each segment, as well as for the overall total, are immediately updated. Although the percentage of people who would not voluntarily accept the configured account is not listed, it can be calculated by subtracting the 'take-rate' from 100%.

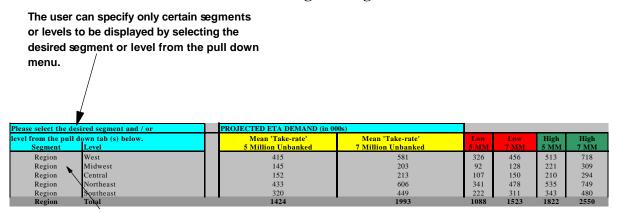
The second part of the market model (located below Part 1 in the same Excel spreadsheet) estimates a range for the number of accounts that would be demanded by the unbanked population if the ETA met the specified features. Using a low and a high figure to estimate the number of unbanked Federal check recipients as well as a mean, a low, and a high predicted 'take-rate' for the ETA provides us with six estimated demand figures. See below:

Market Model Estimated ETA Demand Screen The expected demand for the ETA configured above is calculated here using both a 5 and 7 million ETA Demand is also projected estimation of the unbanked Federal check recipient using a low and a high modification population. of the mean 'Take-rate.' ease select the desired segment and vel from the pull down tab (s) below ROJECTED ETA DEMAND Mean 'Take rate' 5 Million Unbanked Mean 'Take rate' 7 Million Unbanke 43 33 61 46 128 133 Region Midwest 95 57 64 63 **371** 24 31 47 231 230 25 75 286 15 105 SSA SSA&SSI Program 535 113 242 90 95 Over 74 years old Under \$8,000 / year \$8,000 - \$14,999 / v Income Total 333 555 140 159 Ethnic Group Ethnic Groun Pac Isl / Nat Hawaii Am Ind / Alsk Nat 18

Figure 8.2

The user may view the projected ETA demand figures in a variety of ways by using the pull down menus of the table. The pull down menu to the left, labeled 'Segment,' enables the user to limit the ETA demand output by segment (i.e., program, area, ethnic group, age, income, or region). The pull down menu on the right, labeled 'Level' allows the ETA demand output to be limited by segment level (i.e., city, suburb, etc.). If '(All)' is selected from both pull down menus, the ETA demand for all segments and levels will be shown as they are above.

Market Model Screen - Using the 'Segment' Pull Down



The output has been limited to demand by region.

Figure 8.3

If, for example, 'Region' is selected from the 'Segment' pull down menu, only ETA demand for the Central, Midwest, Northeast, Southeast and West will be shown. The projected ETA demand output can be narrowed even further by choosing a segment level (i.e., Northeast, West, etc.) from the 'Level' pull down menu. If the 'Level' has been specified, it must be changed back to '(All)' before another segment can be viewed.

Market Model Screen - Using the 'Level' Pull Down

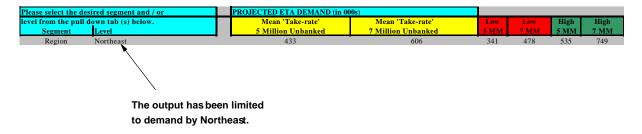


Figure 8.4

8.5 Model Results

The market model is especially useful when one of the hypothetical ETA configurations examined in the study is configured. Figures 8.5–8.9 below show the total ETA demand for these five hypothetical configurations at \$3.00. By changing the monthly fee level for the ETA configuration, the user can see how demand changes as price varies. Or, by adding a feature such as '2% Interest' or 'Other Deposits' to an account, the user can view the impact of that feature. Since the market model fragments demand into different segments, it also provides insight into who would be most/least interested in the different accounts.

Market Model – 'All Electronic' at a \$3.00 Monthly Fee

Please select the desired segment and / or			PROJECTED ETA DEMAND (in 00	00s)				
level from the pull down tab (s) below.			Mean 'Take rate'	Mean 'Take rate'	Low	Low	High	High
Segment	Level		5 Million Unbanked	7 Million Unbanked	5 MM	7 MM	5 MM	7 MM
Total Only			276	386	198	278	383	536
Region	West		63	88	43	61	91	128
Region	Midwest		56	79	33	46	95	133
Region	Central		37	52	24	34	57	80
Region	Northeast		45	63	31	43	64	90
Region	Southeast		33	46	33	47	63	89
Region	Total		248	347	165	231	371	519
Area	City		165	230	132	445	205	286
Area	Suburb		18	25	10	15	10	15
Area	Small Town		53	75	38	53	75	105
Area	Countryside		45	64	30	49	68	95
Area	Total		281	394	210	294	358	501
Program	SSA		181	254	136	190	241	338
Program	SSA&SSI		20	28	14	20	28	39
Program	SSI		50	70	37	52	66	93
Program	Veterans		15	21	9	13	25	35
Program	* Railroad		3	4	1	1	9	12
Program	* OPM		4	6	1	2	13	19
Program	Total		273	382	198	277	382	535
Age	Under 34 years old		60	84	44	62	81	113
Age	Ages 34 -54		137	192	109	153	173	242
Age	Ages 55 - 74		43	61	29	41	64	90
Age	Over 74 years old		42	58	25	35	68	95
Age	Total		282	395	207	290	385	539
Income	Under \$8,000 / year		212	297	172	241	261	365
Income	\$8,000 - \$14,999 / year		50	70	36	50	70	98
Income	Over \$15,000 / year		44	62	29	41	66	92
Income	Total		307	430	238	333	397	555
Ethnic Group	Hispanic		37	52	24	41	57	79
Ethnic Group	Black		109	152	84	117	140	196
Ethnic Group	White		126	176	99	139	159	223
Ethnic Group	Asian		3	4	2	2	6	8
Ethnic Group	Pac Isl / Nat Hawaii		1	1	0	1	1	2
Ethnic Group	Am Ind / Alsk Nat		7	9	3	5	13	18
Ethnic Group	Other		2	3	1	2	4	6
Ethnic Group	Total		284	398	213	299	381	533

Figure 8.5

Market Model - 'Base' at a \$3.00 Monthly Fee

Please select the de	esired segment and / or	PROJECTED ETA DEMAND (in 00	00s)				
level from the pull	down tab (s) below.	Mean 'Take rate'	Mean 'Take rate'	Low	Low	High	High
Segment	Level	5 Million Unbanked	7 Million Unbanked	5 MM	7 MM	5 MM	7 MM
Total Only		585	818	439	615	773	1082
Region	West	129	180	93	130	176	247
Region	Midwest	107	150	67	93	167	234
Region	Central	82	114	56	78	118	165
Region	Northeast	125	174	91	127	169	236
Region	Southeast	92	129	75	106	132	184
Region	Total	542	759	381	534	762	1067
Area	City	312	437	258	870	376	526
Area	Suburb	58	81	37	51	37	51
Area	Small Town	117	163	86	120	157	220
Area	Countryside	97	136	67	110	138	193
Area	Total	584	817	448	627	708	991
Program	SSA	388	543	302	423	495	692
Program	SSA&SSI	41	57	31	43	55	77
Program	SSI	102	143	79	111	130	182
Program	Veterans	29	40	18	25	45	63
Program	* Railroad	18	25	8	11	34	48
Program	* OPM	5	8	2	2	16	23
Program	Total	583	816	439	615	775	1085
Age	Under 34 years old	161	225	125	175	205	287
Age	Ages 34 -54	257	359	210	294	311	435
Age	Ages 55 - 74	115	160	81	114	160	224
Age	Over 74 years old	55	77	34	48	88	123
Age	Total	587	822	451	631	764	1069
Income	Under \$8,000 / year	411	575	343	480	489	685
Income	\$8,000 - \$14,999 / year	110	154	82	115	147	206
Income	Over \$15,000 / year	112	157	80	112	155	217
Income	Total	633	886	504	706	791	1107
Ethnic Group	Hispanic	49	69	32	56	74	103
Ethnic Group	Black	261	366	212	297	318	445
Ethnic Group	White	267	373	216	303	327	457
Ethnic Group	Asian	7	10	4	6	13	18
Ethnic Group	Pac Isl / Nat Hawaii	2	3	1	1	3	4
Ethnic Group	Am Ind / Alsk Nat	16	23	9	13	29	40
Ethnic Group	Other	5	8	3	4	10	13
Ethnic Group	Total	608	851	478	669	773	1082

Figure 8.6

Market Model - 'Option D' at a \$3.00 Monthly Fee

Please select the de	esired segment and / or	PROJECTED ETA DEMAND (in 00	00s)				
level from the pull down tab (s) below.		Mean 'Take rate'	Mean 'Take rate'	Low	Low	High	High
Segment	Level	5 Million Unbanked	7 Million Unbanked	5 MM	7 MM	5 MM	7 MM
Total Only		855	1197	653	914	1106	1548
Region	West	204	286	150	211	272	381
Region	Midwest	159	223	101	142	240	336
Region	Central	94	132	65	91	135	189
Region	Northeast	270	378	204	286	350	491
Region	Southeast	200	280	105	147	179	250
Region	Total	866	1212	626	876	1176	1646
Area	City	424	594	354	1194	504	706
Area	Suburb	87	122	57	80	57	80
Area	Small Town	190	266	142	199	251	351
Area	Countryside	148	207	104	170	206	288
Area	Total	849	1188	657	920	1018	1425
Program	SSA	583	817	461	645	730	1022
Program	SSA&SSI	50	70	37	52	66	93
Program	SSI	153	214	121	170	191	268
Program	Veterans	52	73	34	47	77	107
Program	* Railroad	17	24	7	10	33	46
Program	* OPM	4	6	1	2	14	20
Program	Total	860	1203	661	926	1111	1556
Age	Under 34 years old	312	437	252	353	379	531
Age	Ages 34 -54	336	470	278	389	402	563
Age	Ages 55 - 74	171	239	122	171	235	329
Age	Over 74 years old	46	65	29	40	74	103
Age	Total	865	1211	681	954	1090	1526
Income	Under \$8,000 / year	505	706	424	593	597	836
Income	\$8,000 - \$14,999 / year	199	279	151	211	259	362
Income	Over \$15,000 / year	194	271	143	200	256	358
Income	Total	897	1256	718	1005	1112	1556
Ethnic Group	Hispanic	63	88	41	72	93	130
Ethnic Group	Black	332	464	273	382	398	557
Ethnic Group	White	423	592	348	487	511	715
Ethnic Group	Asian	11	16	6	9	20	27
Ethnic Group	Pac Isl / Nat Hawaii	3	4	2	2	5	7
Ethnic Group	Am Ind / Alsk Nat	26	36	14	20	44	62
Ethnic Group	Other	9	12	5	7	15	21
Ethnic Group	Total	866	1212	690	966	1085	1518

Figure 8.7

Market Model - 'Option D+I' at a \$3.00 Monthly Fee

Please select the desired segment and / or			PROJECTED ETA DEMAND (in 000s)					
level from the pull down tab (s) below.			Mean 'Take rate'	Mean 'Take rate'	Low	Low	High	High
Segment	Level		5 Million Unbanked	7 Million Unbanked	5 MM	7 MM	5 MM	7 MM
Total Only			1302	1822	1019	1427	1633	2286
Region	West		361	506	279	390	454	636
Region	Midwest		147	206	93	130	224	313
Region	Central		143	201	100	141	199	279
Region	Northeast		417	583	327	457	517	724
Region	Southeast		308	432	200	281	315	441
Region	Total		1322	1851	1000	1399	1709	2393
Area	City		661	926	565	1906	765	1071
Area	Suburb		143	201	100	141	100	141
Area	Small Town		285	399	217	304	367	513
Area	Countryside		227	317	163	267	307	429
Area	Total		1316	1842	1047	1465	1539	2154
Program	SSA		869	1217	702	982	1060	1484
Program	SSA&SSI		104	145	80	112	132	184
Program	SSI		222	311	180	251	270	378
Program	Veterans		87	121	59	83	120	168
Program	* Railroad		14	20	6	8	29	41
Program	* OPM		9	12	3	4	24	34
Program	Total		1304	1826	1029	1441	1635	2288
Age	Under 34 years old		484	677	410	574	559	782
Age	Ages 34 -54		484	677	409	572	566	792
Age	Ages 55 - 74		329	461	244	342	434	608
Age	Over 74 years old		93	130	59	82	144	201
Age	Total		1390	1946	1122	1570	1702	2383
Income	Under \$8,000 / year		775	1085	663	928	899	1259
Income	\$8,000 - \$14,999 / year		385	540	305	427	476	667
Income	Over \$15,000 / year		274	384	210	294	346	485
Income	Total		1435	2009	1178	1649	1722	2410
Ethnic Group	Hispanic		132	185	91	157	186	261
Ethnic Group	Black		576	806	497	696	656	919
Ethnic Group	White		566	792	471	659	674	944
Ethnic Group	Asian		21	29	12	17	33	46
Ethnic Group	Pac Isl / Nat Hawaii		5	7	3	4	8	12
Ethnic Group	Am Ind / Alsk Nat		46	65	27	38	74	104
Ethnic Group	Other		15	22	9	13	25	35
Ethnic Group	Total		1361	1905	1110	1554	1656	2319

Figure 8.8

Market Model - 'Option D+I+P' at a \$3.00 Monthly Fee

Please select the de	esired segment and / or	PROJECTED ETA DEMAND (in 0	00s)				
level from the pull down tab (s) below.		Mean 'Take rate'	Mean 'Take rate'	Low	Low	High	High
Segment	Level	5 Million Unbanked	7 Million Unbanked	5 MM	7 MM	5 MM	7 MM
Total Only		1433	2007	1128	1580	1783	2497
Region	West	415	581	326	456	513	718
Region	Midwest	145	203	92	128	221	309
Region	Central	152	213	107	150	210	294
Region	Northeast	433	606	341	478	535	749
Region	Southeast	320	449	222	311	343	480
Region	Total	1424	1993	1088	1523	1822	2550
Area	City	712	997	612	2064	819	1147
Area	Suburb	153	214	108	152	108	152
Area	Small Town	330	462	254	356	419	587
Area	Countryside	233	326	169	275	315	441
Area	Total	1428	2000	1144	1601	1662	2327
Program	SSA	935	1309	759	1062	1133	1587
Program	SSA&SSI	112	157	87	122	142	198
Program	SSI	232	325	189	264	281	394
Program	Veterans	111	156	79	111	147	205
Program	* Railroad	12	17	5	7	26	36
Program	* OPM	8	11	2	3	22	31
Program	Total	1410	1974	1121	1570	1751	2451
Age	Under 34 years old	501	702	427	598	576	806
Age	Ages 34 -54	567	794	485	679	655	917
Age	Ages 55 - 74	314	439	232	324	415	581
Age	Over 74 years old	94	132	60	84	146	204
Age	Total	1477	2067	1204	1685	1792	2509
Income	Under \$8,000 / year	800	1121	685	960	927	1298
Income	\$8,000 - \$14,999 / year	479	670	388	543	577	808
Income	Over \$15,000 / year	295	413	228	320	369	516
Income	Total	1574	2204	1301	1822	1872	2621
Ethnic Group	Hispanic	150	209	104	180	208	292
Ethnic Group	Black	610	854	531	743	691	967
Ethnic Group	White	616	863	515	721	731	1023
Ethnic Group	Asian	21	29	12	17	33	46
Ethnic Group	Pac Isl / Nat Hawaii	5	7	3	4	8	12
Ethnic Group	Am Ind / Alsk Nat	47	65	27	38	75	104
Ethnic Group	Other	16	22	9	13	25	35
Ethnic Group	Total	1464	2050	1201	1682	1770	2479

Figure 8.9

8.6 Market Model Options

The market model is meant to be an interactive tool. The user can vary hypothetical ETA product configurations and segment parameters to estimate the number of unbanked Federal check recipients who would voluntarily choose that product configuration. It also permits the user to assess the impact of varying the number of accesses per month.

Geographic Region

Respondents' states were divided into five geographic regions: West, Central, Midwest, Southeast, and Northeast. The following map identifies the states that belong to each region in the market model.



Figure 8.10

To project the number of unbanked Federal check recipients for each region, the population distribution by region given in the 1997 Statistical Abstract of the United States was multiplied by the estimated number of national unbanked Federal check recipients (see Table 8.1 for weights).

Financial institutions can estimate the number of potential ETA customers who reside in their market territory by the following procedure:

- 1) Specify an ETA product configuration using the market model to determine the 'take-rate' for the segment they are interested in examining,
- 2) Apply the 'take-rate' for that segment or region to the number of unbanked Federal check recipients in the states that they serve,
- 3) Apply the assumption that 24% of Federal check recipients are unbanked to the number of checks sent to each state or zip code that they serve. These numbers are available and can downloaded into excel from the **FMS** website at: http://www.fms.treas.gov/eft/zipcode.html,
- 4) Multiply the 'take-rate' by the number of unbanked in their market area.

For example, if a financial institution was interested in identifying the ETA demand in Alabama, it would:

Hypothetical Example for Alabama

1) Specify the ETA product: Base product at \$3.00

2) Find the 'take-rate' from the market model: 8%, 11%, 14% (for Southeast)

3) Find the number of checks for Alabama from the FMS website: 423,501 Multiply this by 24% to get unbanked population: 423,501 * 24% = 101,640

4) Multiply the 'take-rate' by the number of unbanked:

	Take Rate	Unbanked	Estimated Demand
Low	8%	101,640	8,131
Mean	11%	101,640	1,1180
High	14%	101,640	14.230